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FIG.3.

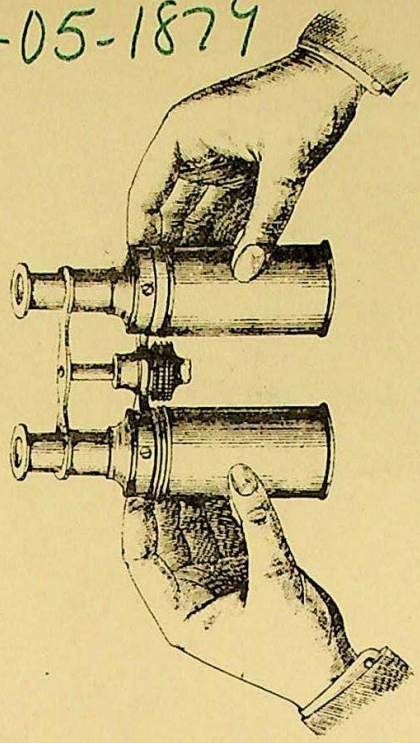
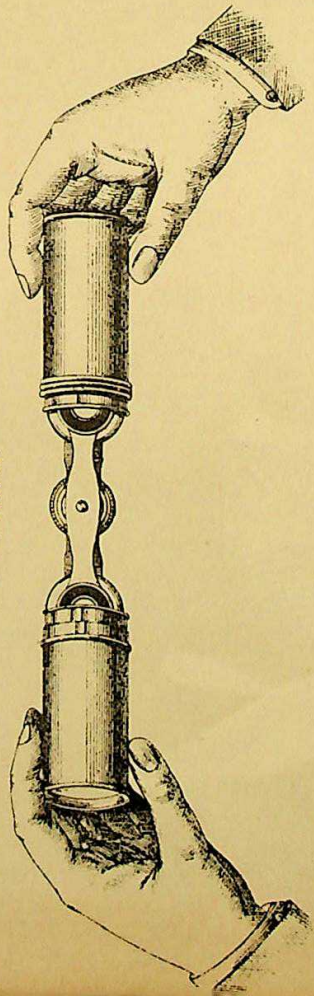


FIG.1.

FIG.2.



telescope

359/408

A.D. 1879, *3rd MAY.* N° 1760.

Binocular Telescopes and Opera Glasses.

LETTERS PATENT to George William Frodsham, of No. 4, Change Alley, Cornhill, in the City of London, Chronometer Maker, for the Invention of "IMPROVEMENTS IN THE CONSTRUCTION OF BINOCULAR TELESCOPES AND OPERA GLASSES."

Sealed the 31st October 1879, and dated the 3rd May 1879.

PROVISIONAL SPECIFICATION left by the said George William Frodsham at the Office of the Commissioners of Patents on the 3rd May 1879.

GEORGE WILLIAM FRODSHAM, of No. 4, Change Alley, Cornhill, in the City of London, Chronometer Maker. "IMPROVEMENTS IN THE CONSTRUCTION OF BINOCULAR TELESCOPES AND OPERA GLASSES."

My Invention consists in connecting the cylinders which carry the object glasses and the framework containing the eye pieces and screw adjustment, so as to enable the user to slide the latter (framework) into the former (cylinders); and I effect that by pivotting the open ends of the cylinders by means of screwed or rivetted pivots on to the ends of the framework. I also employ a circular engraved scale to surround the central pivot, so that when the instrument has been opened for use the distances between the cylinders may be adjusted to suit the position of the eyes of the person using the instrument.

[Price 4d.]

Frodsham's Improvements in Binocular Telescopes and Opera Glasses.

SPECIFICATION in pursuance of the conditions of the Letters Patent filed by the said George William Frodsham in the Great Seal Patent Office on the 3rd November 1879.

GEORGE WILLIAM FRODSHAM, of No. 4, Change Alley, Cornhill, in the City of London, Chronometer Maker. "IMPROVEMENTS IN THE CONSTRUCTION OF BINOCULAR TELESCOPES AND OPERA GLASSES."

My Invention will be understood by the following explanation and reference to the Drawings which represent a binocular opera glass in three several states, *i.e.*, closed, half open, and entirely open ready for use, as shewn in Figures 1, 2, and 3.

Figure 3 shews the completely developed opera glass, the cylinders containing the object glasses being moveable about screws which act as pivots and are screwed into the bar carrying the screw adjustment for focus.

These cylinders contain within them at their upper ends (*vide* Figure 3) smaller cylinders which have in them the holes necessary to receive the screw pivots, and are attached to the bar thereby.

These smaller cylinders or tubes are about one third the length of those that contain the object glasses, and are so fitted as to be capable of being slidden the whole length within the outer or object glass cylinders, and are prevented from being entirely drawn out of the same by suitable stops.

This arrangement permits the whole of the remaining portion of the opera glass to be slidden into these two cylinders, first rotating the object glass cylinders through a quarter of a circle about the screw pivots, so as to bring them into the position shewn in Figure 2, and afterwards causing them to approach each other until the whole presents the appearance shewn in Figure 1.

This it will be perceived is effected by the smaller tubes which have the screw holes in them for the pivot screws being capable of being slidden in the object glass tubes.

As, however, the remaining portion referred to above could not possibly enter the object glass tubes even with the focussing arrangement screwed in so as to bring the eye pieces as close as they can be brought to the object glasses on account of the eye pieces being mounted in tubes which project considerably above the upper bar (Figure 3), it is first necessary to close down these eye piece tubes until their flanges project only their own thickness above the upper bar. This is effected in the manner usual with ordinary telescope tubes, there being no additional screw adjustment for drawing out and pushing in these small tubes which are drawn out by the fingers to their full extent when it is desired to open this folding opera binocular, the focus being afterwards found by using the ordinary screw focus adjustment.

Fig. 2 shews the binocular with the eye pieces towards the viewer of the Drawings; in this state the glass is ready to be either opened or closed.

The operation of closing the instrument having been described it remains only to state that the instrument may be opened by reversing the several procedures above detailed.

I do not claim any of the parts taken separately, but what I claim as my Invention is the combination and arrangement, substantially as hereinbefore described and as illustrated by the Drawings filed herewith.

In witness whereof, I, the said George William Frodsham, have hereunto set my hand and seal, this Third day of November, in the year of our Lord One thousand eight hundred and seventy nine.

G. W. FRODSHAM. (L.S.)

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Printers to the Queen's most Excellent Majesty.
For Her Majesty's Stationery Office.

1879.